Propeller Data.
Spare

Hub - Bv Aero Design No. 5406R

Ser # B 3740 24452
3740 24453

Blade #1

Hartzell # 8865
Drawing # 4350-F1
Contract # 93762
Serial # N 9551

Blade #1

Hartzell # 9792
Drawing # 4350-F1
Contract # 93762
Serial # N 10893

SECTION IV - SERVICE INSTRUCTIONS

1. POWER PLANT

(A) Engine Installation and Power Plant Controls.

1. The N3N-3 is powered with a Wright Model R-760-2 or R-760-8 engine, manufactured by the Naval Aircraft Factory. The engine rating is 235 BHP at 2000 r.p.m. at sea level.

2. The exhaust system consists of a front exhaust manifold of annular form with tangential connections to exhaust elbows on engines.

3. The engine mount is of welded steel tubular design with 4 points of support at attachment lugs on the firewall. The bolt hole in these lugs have a replaceable bushing which should be checked from time to time to insure that they are tight. The engine mounting bolts should be checked and taken up as required after 2 to 3 hours of flying.

4. The propeller is the standard ground adjustable type consisting of the following:

   (a) 1 - Hub - Bu.Aero. Design No. 5406R
   2 - Blades, 9' 0" dia. - Bu.Aero. Design No.4350F
   Blade angle set at 13-1/2° at 42" station.

   The propeller attaching parts are as follows:

Front Cone	AN5007-30
Rear Cone	AN5008-30
Snap Ring	AN5009-30
Rear Cone Spacer	AN5010-30
Hub Nut	AN5011-30

5. The engine controls (throttle and mixture) are the push-pull rod with jack shaft arrangement. Adjustments are made when necessary by means of adjustable ball bearing type rod ends. See Drawing No. 67668, page 65 which shows engine control installation.

6. Lubricate engine controls periodically at all grease fittings provided. See page 94.

7. There is an engine control unit located in each cockpit. The unit in the rear cockpit is provided with an approved type lock on the mixture lever. This lock must be taped open when plane is occupied in front cockpit only.

8. The spark control is of the push-pull rod type and is independent from throttle and mixture control. It is located on the left side of the cockpit and is controlled from either cockpit.

9. The starting system consists of a Series VI hand operated inertia starter with integral booster magneto, an engine primer assembly, crank handle, crank extension and support. On the first 50 airplanes, the engine starter will crank from right hand side but will be changed to left hand side by the Service when parts are furnished. On the remaining airplanes, the engine starter will be cranked from the left side of the airplane.

10. The starter trip control is located on the outside of engine cowl near the crank extension sleeve which is engaged by the starter crank. The starter crank is stowed on the engine mount in the engine compartment just forward of the firewall on the cranking side. When plane is used as seaplane, the starter crank is bolted to the special crank extension which replaces the original landplane type crank extension.

11. A hinged access door is provided on both sides of the engine cowl to permit installation or removal of battery or starter crank, or both, as is the case on right hand side cranking installation.

12. For complete installation of pressure fire extinguisher system see Drawing 67526, page 66 The system is provided for purpose of flooding the engine compartment with carbon dioxide. The CO_2 bottle is installed on left side of fuselage aft of firewall. An operating handle is provided in the upper right hand corner of each cockpit just below the instrument board.

13. For the arrangement of power plant installation including fuel and oil system, see Drawing 68122, page 59.

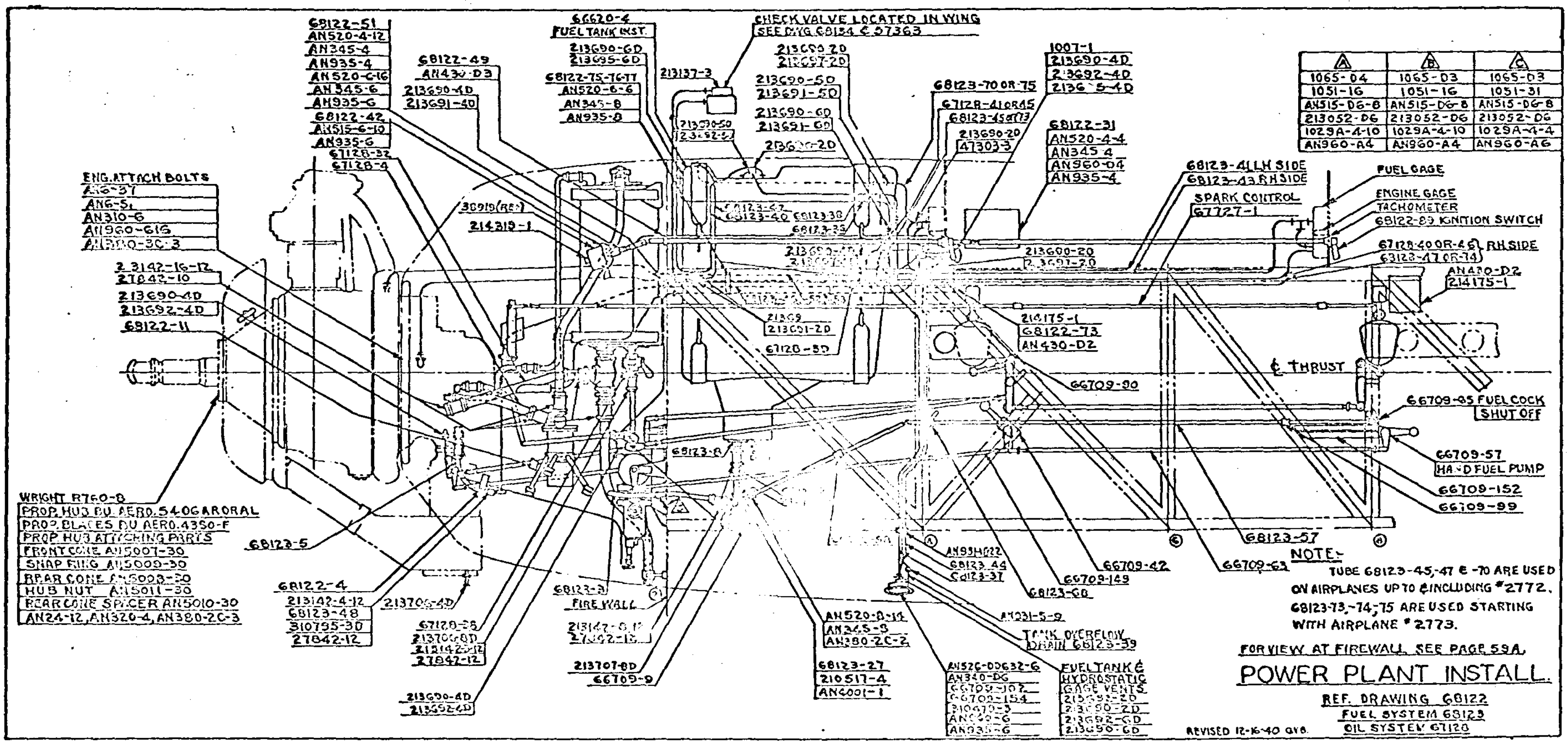
(B) Fuel System

1. For the general arrangement and sizes of lines of the fuel system which is of the series type, see Drawing 310777, page 67 The fuel tank is located just forward of the front cockpit with filler neck on top at forward end. Its capacity is 45 gallons and is sufficient for approximately 3-1/4 hours flight at cruising r.p.m. of 1800.

2. The main shut-off cock is installed on lower left longeron aft of the firewall and is controlled from each cockpit (left hand side).

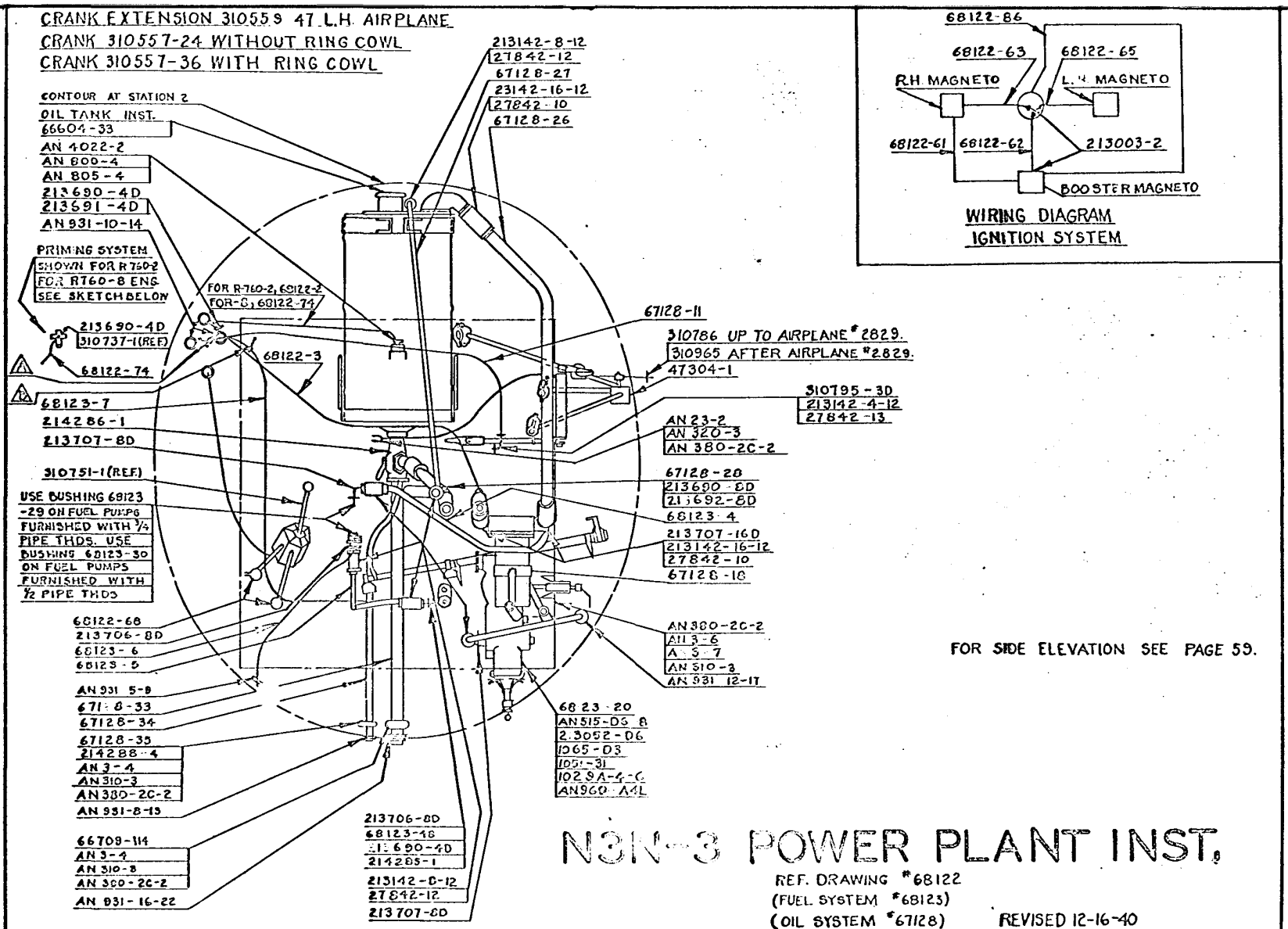
3. The method of mounting the fuel tank is shown on Fuel Tank Installation, Drawing 66620, page 68.

4. To remove the fuel tank, it is necessary to disconnect the incidence wires in the plane of the cabane struts, either on the R.H. or L.H. side of the plane. Remove cowling, disconnect the upper tank strap turnbuckles and all immediate pipe connections. The tank can then be lifted over the longerons and rolled out through the opening between the cabane struts.



A	B	C
1065-D4	1065-D3	1065-D3
1051-16	1051-16	1051-31
AN515-D6-8	AN515-D6-8	AN515-D6-8
213052-D6	213052-D6	213052-D6
1029A-4-10	1029A-4-10	1029A-4-4
AN960-A4	AN960-A4	AN960-A6

CRANK EXTENSION 310559 47 L.H. AIRPLANE
CRANK 310557-24 WITHOUT RING COWL
CRANK 310557-36 WITH RING COWL

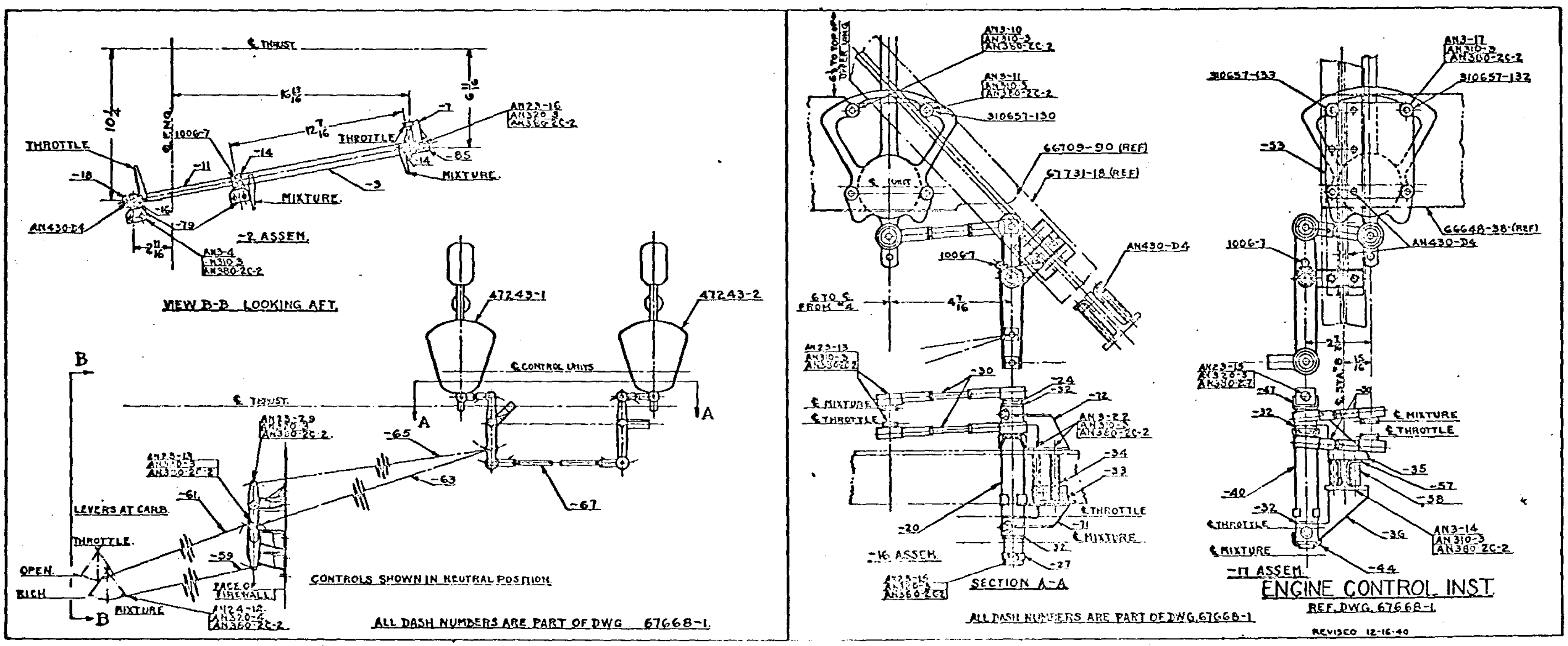


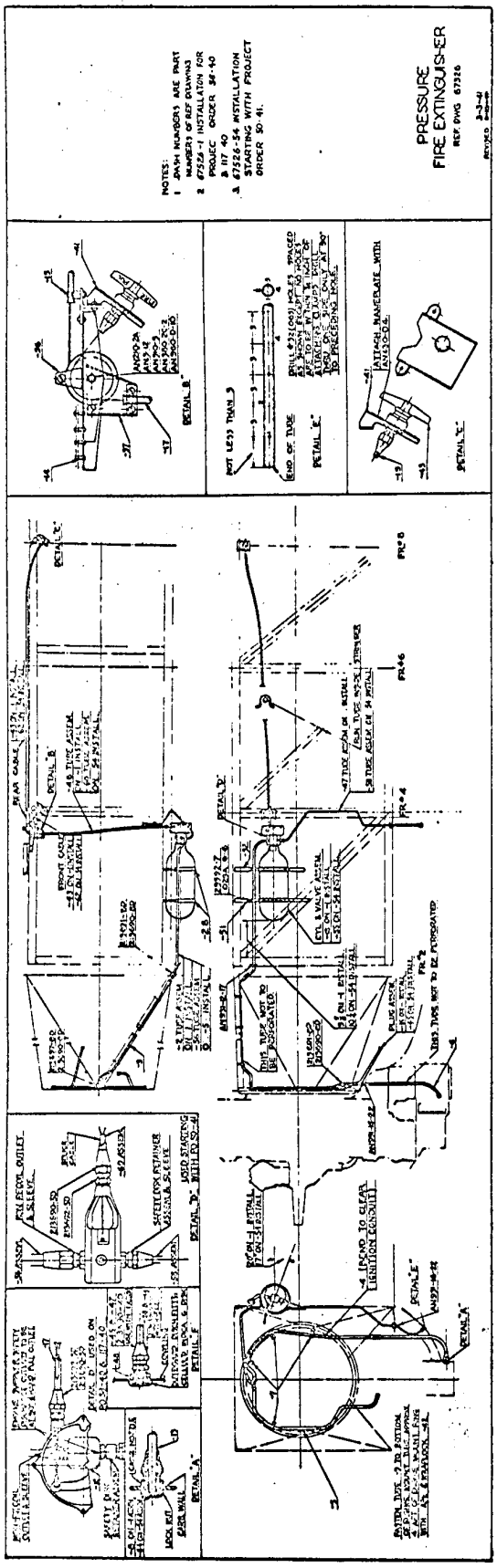
WIRING DIAGRAM
IGNITION SYSTEM

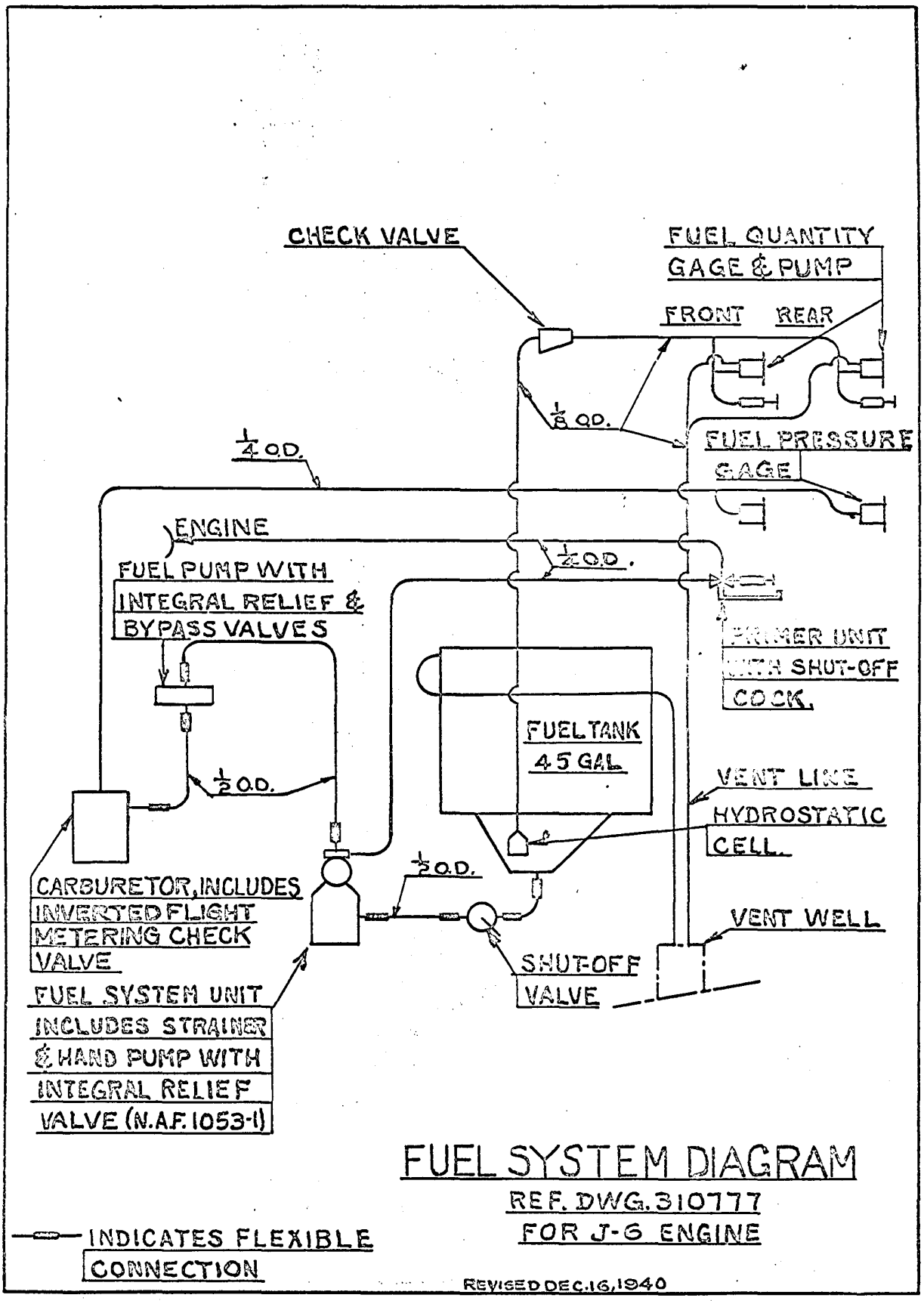
FOR SIDE ELEVATION SEE PAGE 59.

N3N-3 POWER PLANT INST.

REF. DRAWING #68122
(FUEL SYSTEM #68123)
(OIL SYSTEM #67128) REVISED 12-16-40


VIEW B-B LOOKING AFT.
-2 ASSEM.
THROTTLE
MIXTURE
47243-1
47243-2
LEVERS AT CARB.
OPEN
RICH
FACE OF FIREWALL
CONTROLS SHOWN IN NEUTRAL POSITION.
ALL DASH NUMBERS ARE PART OF DWG 67668-1.
SECTION A-A
-16 ASSEM.
ALL DASH NUMBERS ARE PART OF DWG.67668-1
-11 ASSEM.
ENGINE CONTROL INST.
REF. DWG. 67668-1
REVISED 12-16-40

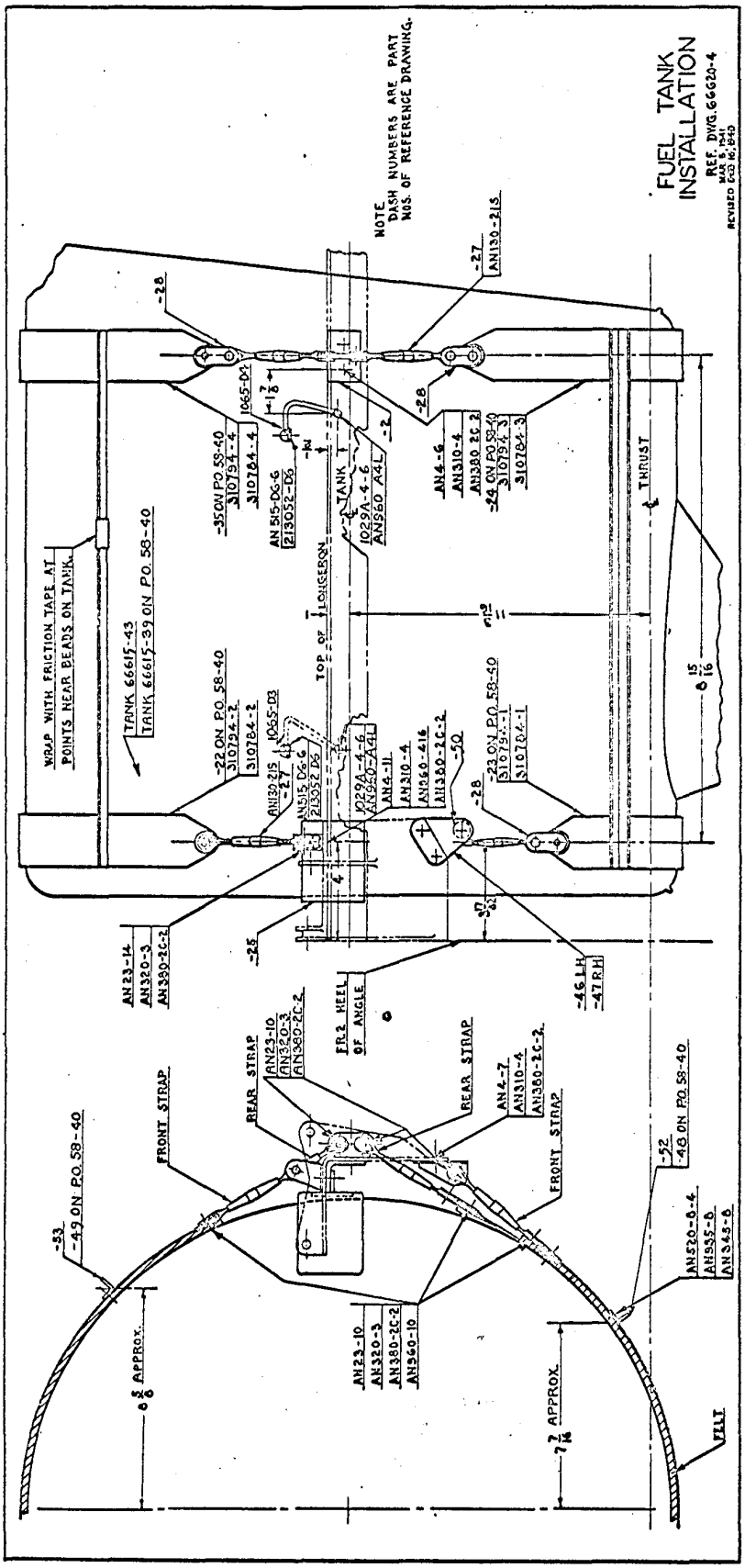

NOTES:
1. ITEM NUMBERS ARE PART NUMBERS OF REF DRAWING
2. 67526-1 INSTALLATION FOR PROJECT ORDER 30-40
3. 67526-54 INSTALLATION STARTING WITH PROJECT ORDER 30-41.
PRESSURE FIRE EXTINGUISHER
REF DWG 67326
DETAIL "A"
DETAIL "B"
DETAIL "C"
DETAIL "D"
DETAIL "E"
DETAIL "F"
FR 2
FR 4
FR 6
FR 46



FUEL SYSTEM DIAGRAM

REF. DWG. 310777
FOR J-6 ENGINE

REVISED DEC. 16, 1940


FUEL TANK INSTALLATION
REF. DWG. 66620-4
MAR 5, 1941
REVISED ECO NO. 849
NOTE
DASH NUMBERS ARE PART NOS. OF REFERENCE DRAWING.
WRAP WITH FRICTION TAPE AT POINTS NEAR BEADS ON TANK
TANK 66615-43
TANK 66615-39 ON PO. 58-40
TOP OF LONGERON
TANK
THRUST
FRONT STRAP
REAR STRAP
FRONT STRAP
REAR STRAP
FRONT STRAP
FR. 2 HEEL OF ANGLE
-46 LH
-47 RH
-49 ON PO. 58-40
-48 ON PO. 58-40
AN23-14
AN320-3
AN380-2C-2
AN23-10
AN320-3
AN380-2C-2
AN960-10
AN4-7
AN310-4
AN380-2C-2
AN520-8-4
AN935-8
AN345-8
AN4-6
AN310-4
AN380-2C-2
AN4-11
AN960-416
AN515-D6-6
213052-D6
1065-D3
1029A-4-6
AN960-A4L
AN130-215
-27
-28
-25
-52
-50
-2
-4
-1
-53
-35 ON PO. 58-40
-22 ON PO. 58-40
-24 ON PO. 58-40
-23 ON PO. 58-40
310794-4
310784-4
310724-2
310784-2
310794-3
310784-3
310794-1
310784-1
AN515-D6-6
213052-D6
1029A-4-6
AN960-A4L
1065-D4
1065-D3
APPROX.
APPROX.
VLT

5. The fuel quantity gauge is of the hydrostatic type with the check valve located in the upper wing at the L.H. cabane strut. The tubing is attached on the outside of the strut and an access door to the check valve is provided in the wing. A gauge is installed on the right side of the instrument board in each cockpit and indicates directly the amount of fuel in the tank when plane is flying at speed of 78 knots Fuel tank calibration plate installed in each cockpit on left hand side shows the actual amount of fuel in tank for readings on the gauge when plane is in three-point position and in water borne position.

6. The fuel system unit consisting of a hand wobble pump, relief valve and strainer is installed on lower left forward side of firewall and is operated from each cockpit on left hand side. When priming the engine, it is necessary to first pump pressure on lines with hand pump as the primer draws its fuel from the pressure side of the hand pump.

7. The fuel tank and fuel quantity gauges as shown on Drawing 310777, page 67 are vented through lines which are connected to a small vent chamber attached to the bottom cowling.

8. An engine driven fuel pump draws fuel from the tank to the carburetor. A sylphon type relief valve is built into the pump. The vent holes of all sylphon relief valves should be inspected as noted in T.O. No. 2-37.

9. Fuel System can be drained through the strainer in the fuel system unit.

(C) Oil System

1. For the general arrangement and sizes of lines of the oil system, see Drawing on page 72. The oil tank is located forward of the firewall and supported by brackets and straps fastened to the firewall.

2. The capacity of the oil tank is 3.75 gallons plus an expansion space of approximately 1.0 gallon and a sump space of .25 gal. which is not drainable in any normal flight attitude of the airplane through the regular oil outlet. A graduated sounding rod is provided attached to filter cap to indicate oil level when tail wheel is on the ground.

3. The method of installing the tank is shown on Drawing 66604, page 73.

4. The tank is provided with special large capacity strainer which serves both the filler neck and the return oil. This strainer should be removed for periodic inspection and cleaning. The strainer can be withdrawn through the filler opening when filler unit is removed. A Cuno oil strainer is installed in engine "oil-out" line. Turn the Cuno oil strainer handle daily or at least once every 10 hours of operation. Refer to T.O. 37-40 for lubricating oil draining interval and information on strainers.

(5) The sump space in which sediment and sludge in oil tank settles is drained through the 1/2" drain cock located at bottom of tank. A 1" drain cock is also provided at bottom of tank to drain the oil from the tank.

6. Two thermometer wells for oil-in temperature bulbs are provided in "oil-in" line at engine. The bulbs are furnished with capillary tubes running to both cockpits.

7. The oil system does not incorporate an oil cooler installation.

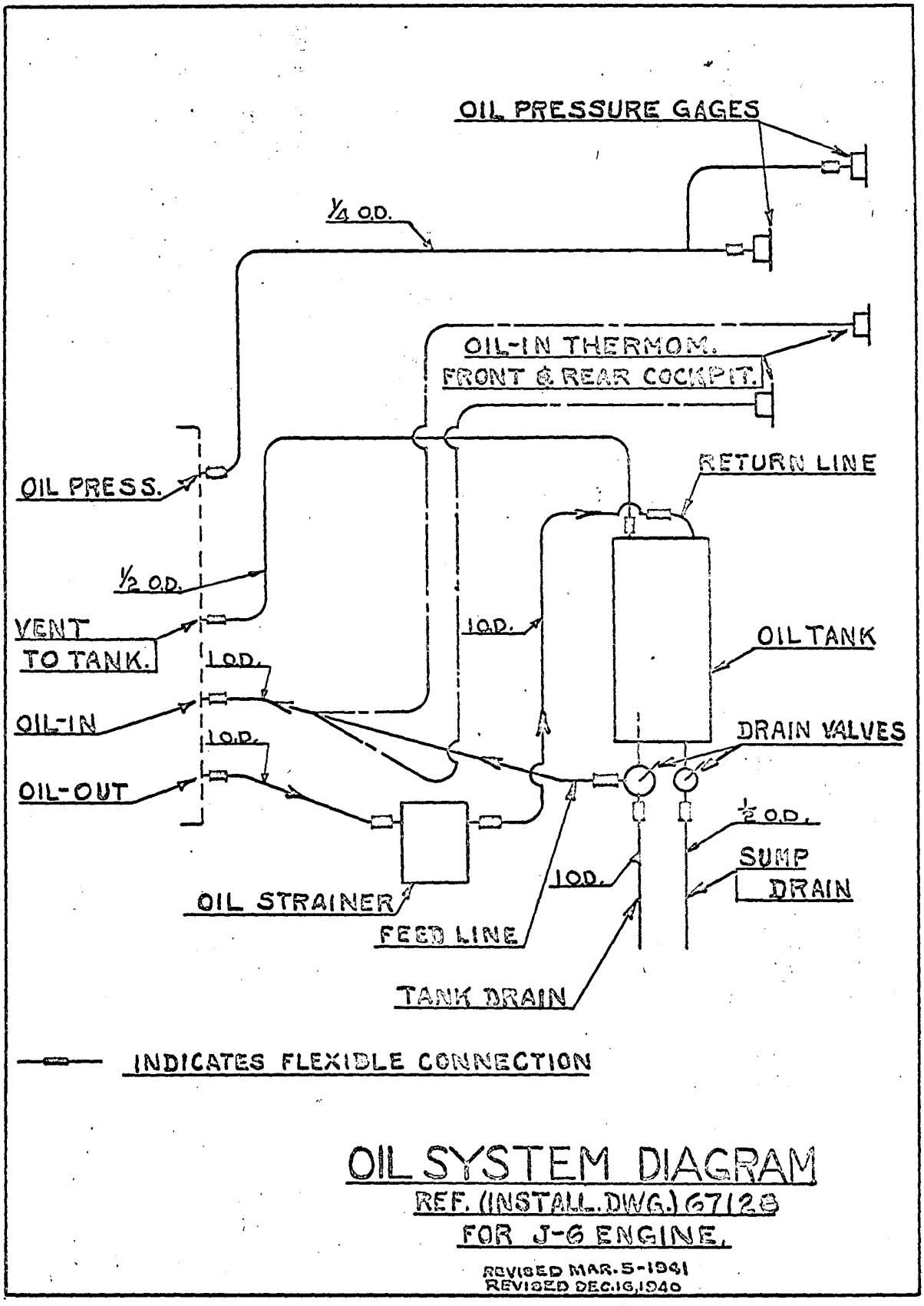
(D) Air Intake System.

1. The air intake system consists of a nose cowl assembly with air scoop at the top and a carburetor air heater assembly including two scoops for cold air inlet.

2. The doors in the body of the carburetor air heater assembly are operated from the front cockpit only, by means of a push-pull flexible control located on left hand side. When control is pulled out, the doors close the cold air supply and take the air which enters the air scoop at the top of the nose cowl and which is heated as it passes behind the exhaust manifold into the opening at lower part of the cowl. No thermometer is provided for measuring the temperature of the intake air.

3. The use of the carburetor air heater is necessary to prevent or remove the ice formation in the carburetor and around the throttle valve. The formation of ice in the carburetor can generally be detected (at cruising throttle opening) by a gradual decrease in the speed or irregular operation of the engine. It is important, in order to obtain maximum power, that the carburetor air preheater control be set for cold air before take-off (except in unusually cold or damp weather). When carburetor heat is applied the mixture very definitely goes rich and if prolonged running is to be done using carburetor heat, the mixture should be reset after applying the heat. Likewise, when heat is shut off the mixture will definitely go lean until possible detonation is started. Therefore, in shutting off carburetor heat, always richen the mixture first Refer to Technical Order No. 19-38 or latest revision.

4. The air maze in the body of the carburetor air heater should be removed approximately every fifty hours of flying, rinsed in gasoline and dipped in fresh oil before replacing on the engine.

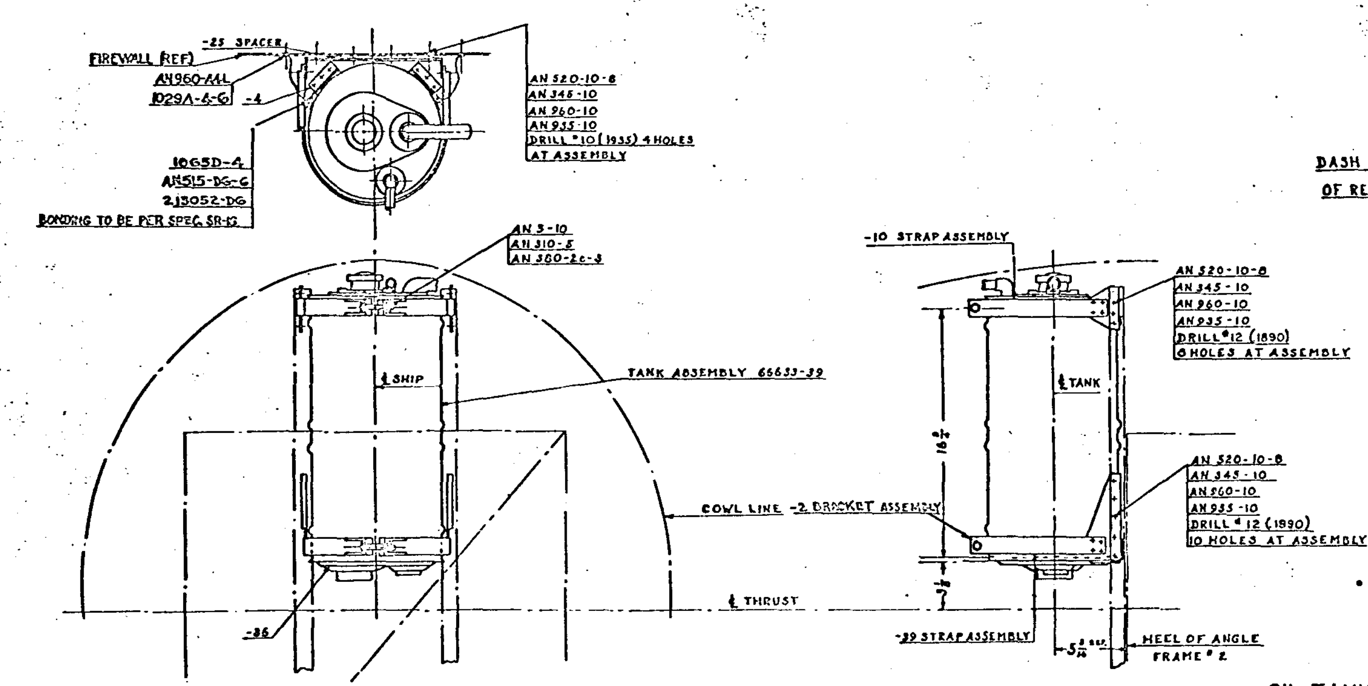


OIL SYSTEM DIAGRAM

REF. (INSTALL. DWG.) 67128

FOR J-6 ENGINE.

REVISED MAR. 5-1941
REVISED DEC. 16, 1940



DASH NUMBERS ARE PART
OF REFERENCE DRAWING

OIL TANK INSTALLATION

REF. DWG 66604

2. FIXED EQUIPMENT (See Drawing 67612, page 80)

(A) Instruments.

(1) The instruments in forward and rear cockpits are located on an indirectly illuminated board. The reflection panel is provided with a crash pad made of molded rubber which is molded to the reflector panel. This reflecting panel is completely removable to permit access to the main board.

(2) The following instruments are installed:

Pilot's Cockpit	Rear Cockpit
Airspeed Indicator	Airspeed Indicator
Altimeter	Altimeter
Clock	Clock
Compass, Mark VIII	Compass, Mark VIII
Fuel Quantity Gauge	Fuel Quantity Gauge
Engine Gauge Unit	Engine Gauge Unit
Tachometer (Electrical)	Tachometer (Electrical)
Turn and Bank Indicator	Turn and Bank Indicator

NOTE: On certain airplanes on Project Order 50-41 the clock is omitted and the engine gauge unit is replaced by separate instruments (Oil Temperature, Oil Pressure and Fuel Pressure).

(B) Surface Controls (See Drawing 67646, page 85)

(1) Refer to Drawing 67646, page 85, for the installation of control sticks and torque tube in front and rear cockpits. The torque tube and control sticks can be removed as a complete unit.

(2) Refer to Drawing 67646, page 85, for the installation of rudder pedals in the front and rear cockpits.

(3) Refer to Drawing 67523, page 86, for the installation of the aileron controls.

(4) Refer to Drawing 67646, page 85, for the complete installation of all the surface controls.

(5) The aileron control system consists of push-pull rods running directly from the torque tube in the cockpit just aft of the rear beam of lower wing and an inter-aioeron streamline strut.

(6) One end of the push-pull rod and of the inter-aileron strut is adjustable. This provides a means of obtaining proper travel of the aileron.

The movement of the ailerons is 30° up and 18° down.

(7) The elevator control system consists of push-pull rods running directly to the elevator horn at frame #18. This elevator horn remains in place when elevators are removed. One end of rear control tube is adjustable. This provides a means of obtaining proper travel of the elevators.

The movement of the elevators is as follows:
35° up - from neutral position of elevator
25° down - from neutral position of elevator

(8) The rudder pedals are adjustable either on the ground or in the air, having 2 forward, neutral, and 2 aft positions. The brake pedals automatically move with the rudder pedals. 5/32 cables are used in the rudder system. Adjustments are obtained by means of turnbuckles.

Refer to page 46 Brake Installation, for changes in rudder pedals on seaplane.

The movement of the rudder is 30° each side of neutral.

(9) Adjustable stops are provided for the aileron and elevator on the control stick and for the rudder by means of stops attached to the fuselage structure in the rear cockpit.

(10) Longitudinal trim is obtained by means of an adjustable trailing edge tab on the left hand elevator. Refer to Drawing 67524, page 87 for the installation of the elevator tab controls. The right hand elevator tab is adjustable on the ground.
The movement of left tab is 15° up and 15° down from neutral.

(C) Furnishings.

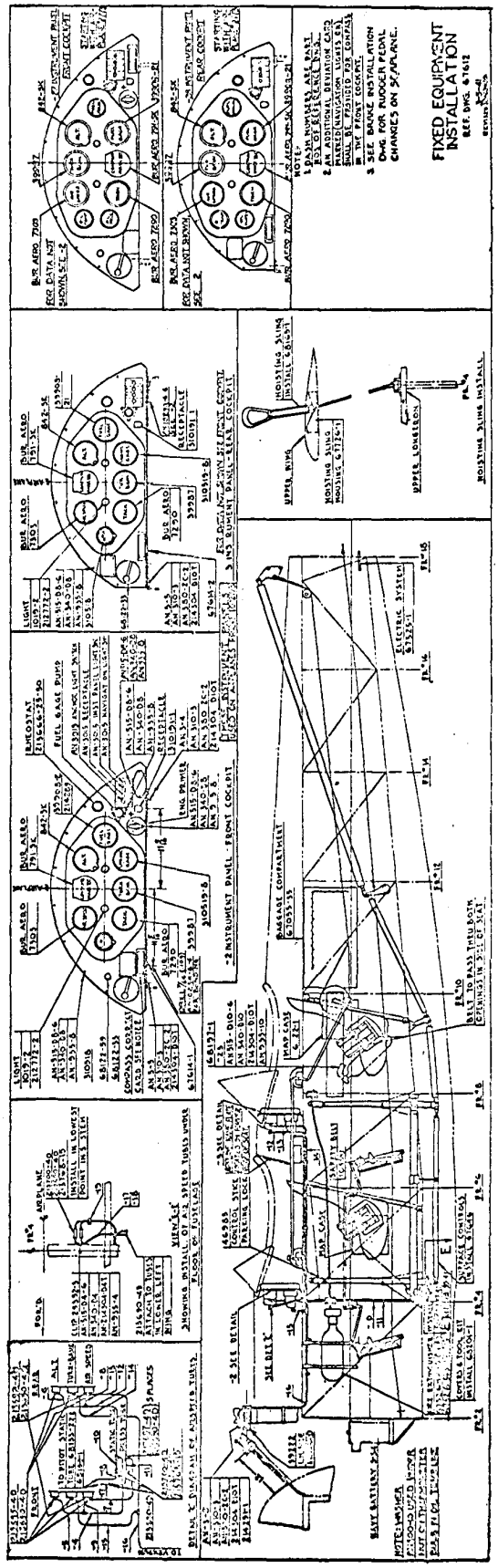
(1) The seating arrangements are identical in both cockpits. They are vertically adjustable in flight. Refer to Drawing 67639, page 88 for complete installation.

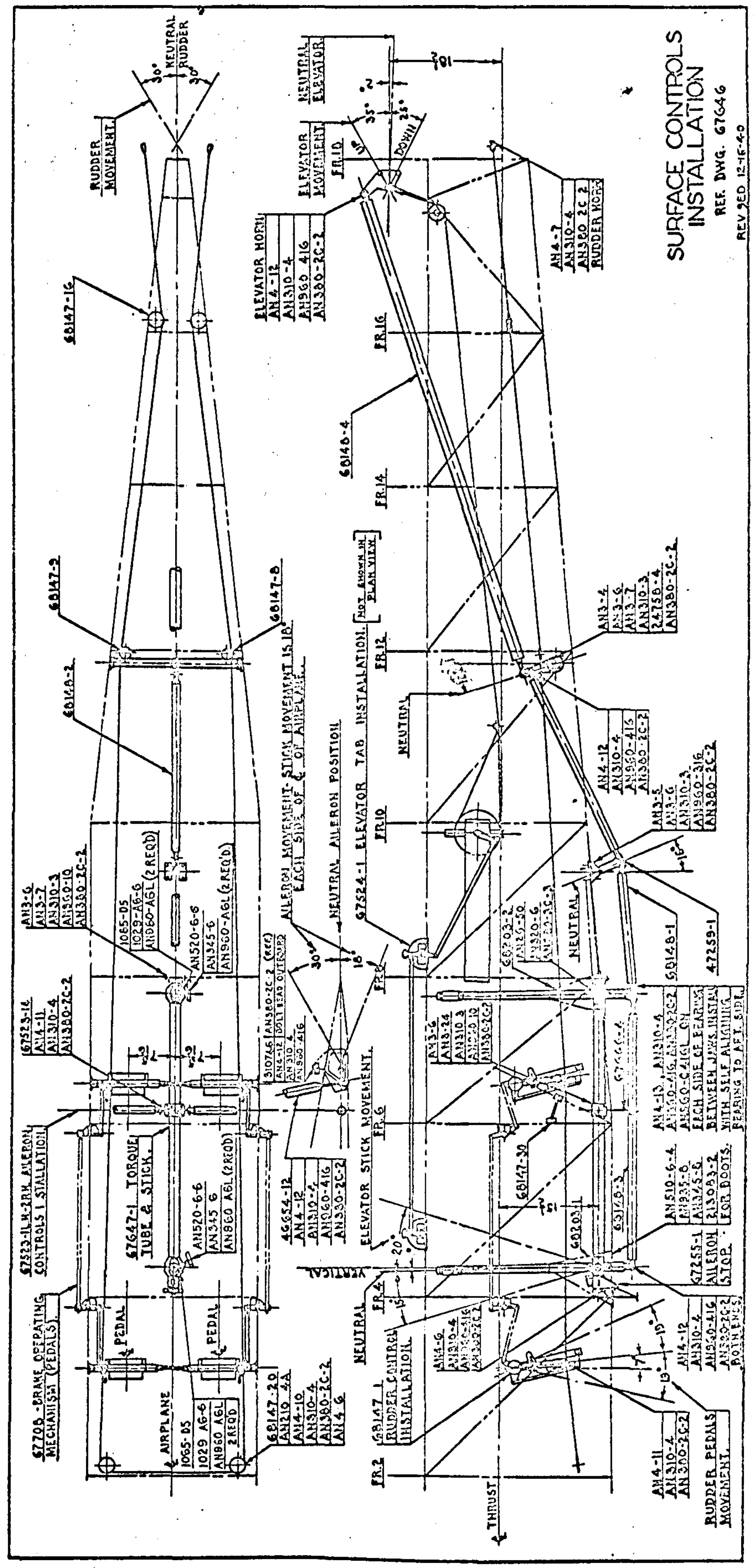
(2) The flooring is an integral part of the fuselage and is not removable.

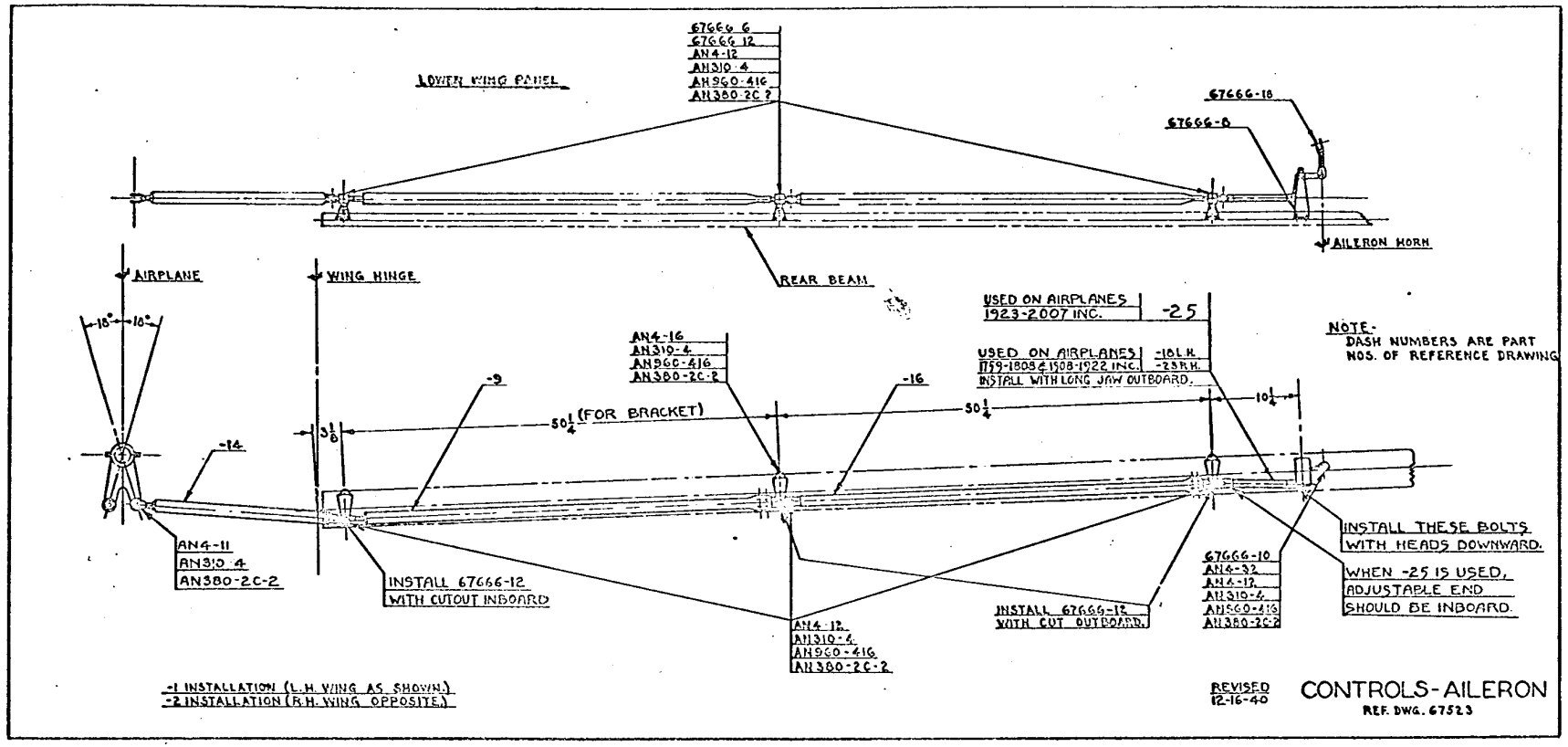
(3) A hand fire extinguisher of the carbon tetrachloride type is installed in the rear cockpit (right hand side).

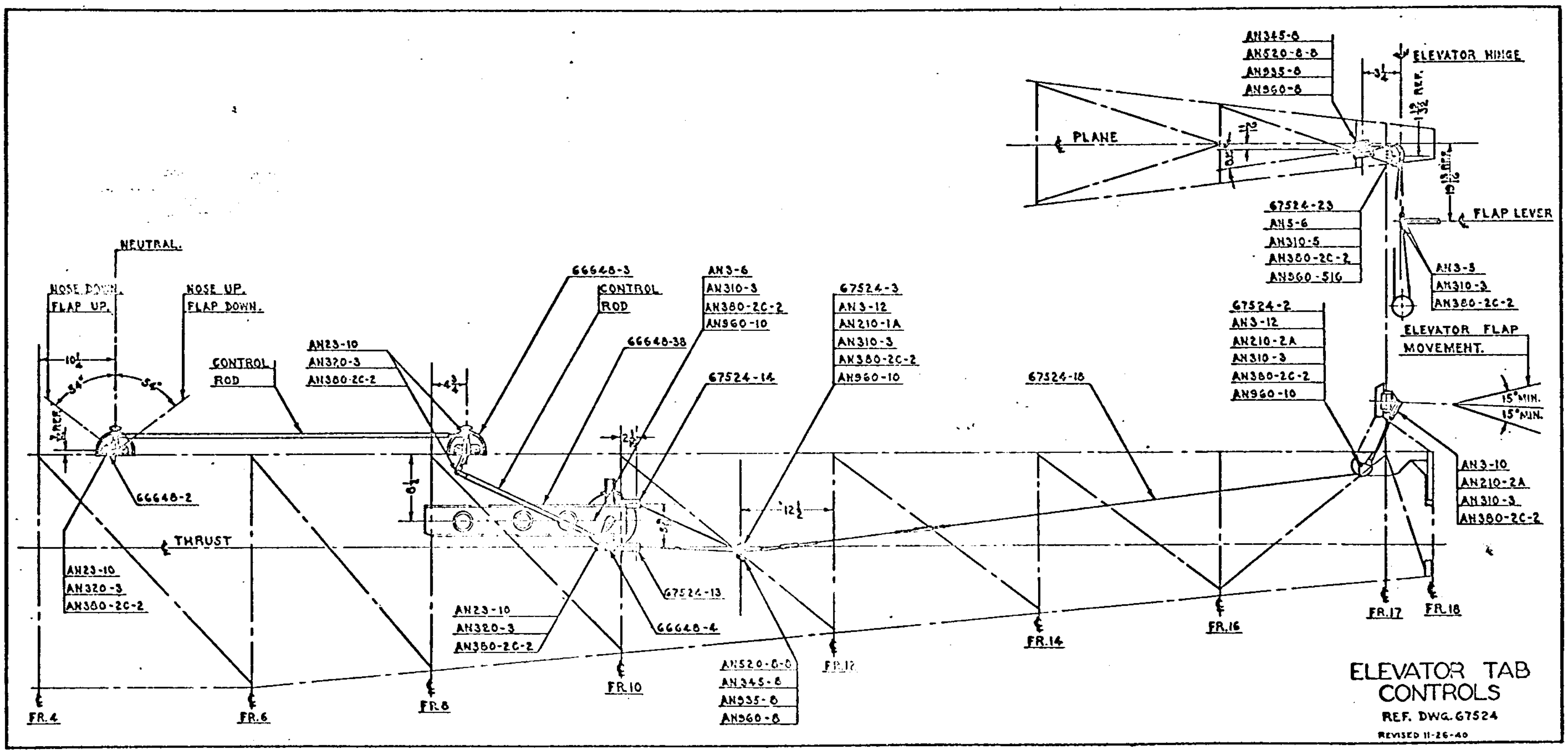
(D) Electrical Equipment.

'1) Refer to Drawing 67525, page 89 for the electrical installation.

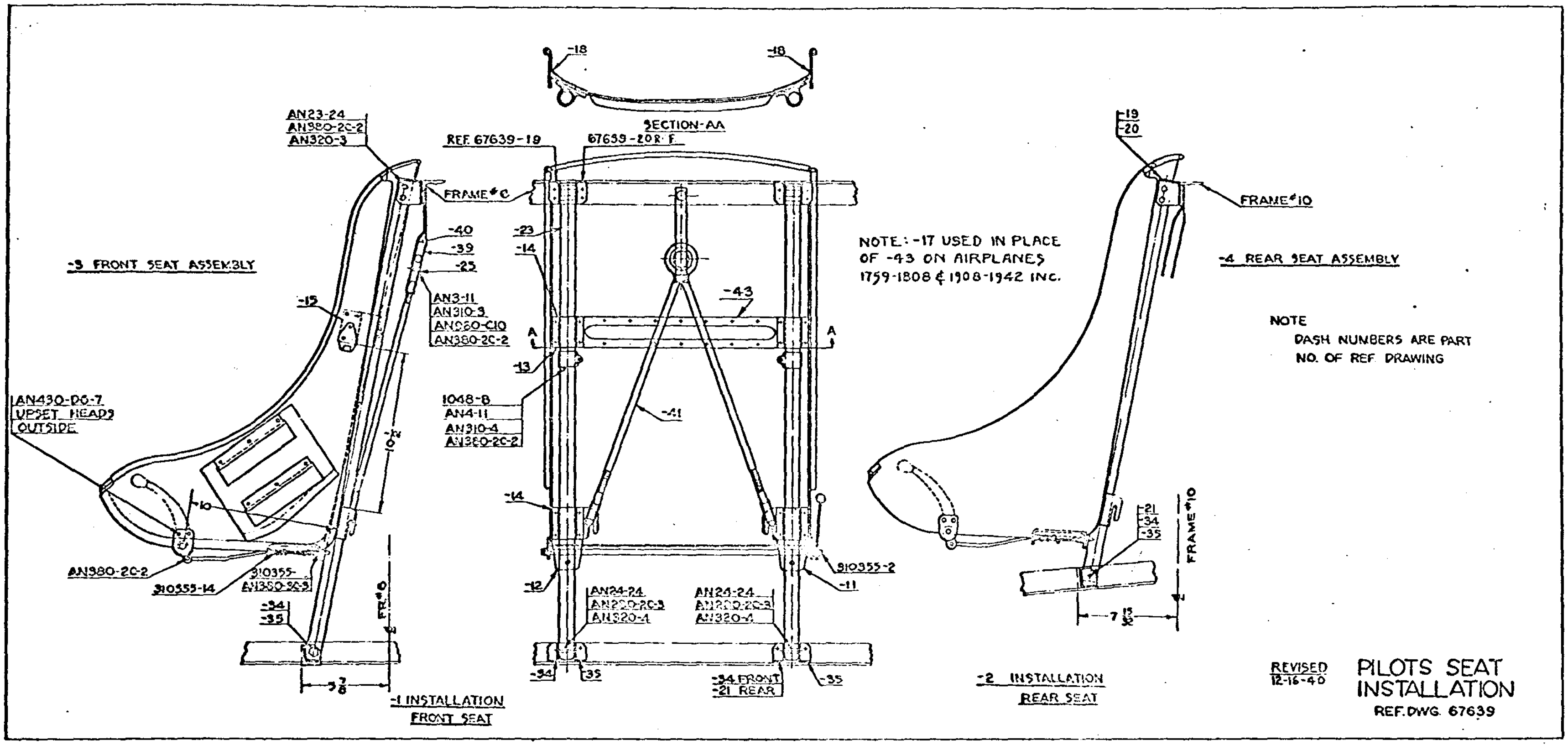

FIXED EQUIPMENT INSTALLATION
REF. DWG. 67612
NOTE:
1. PANEL MOUNTED ALL VERT. FACTORS SEE DWG. 67612
2. FOR ADDITIONAL DEVIATION CARD PLACED IN NAVIGATION LIGHTS SHALL BE PROVIDED FOR COMPASS IN THE FRONT COCKPIT.
3. SEE BRAKE INSTALLATION DWG. FOR RUDDER PEDAL CHANGES ON S/PLANE.
INSTRUMENT PANEL - FRONT COCKPIT
INSTRUMENT PANEL - REAR COCKPIT
BASE STATION
FUEL SELECTOR VALVE
FUEL BOOST PUMP
COMPASS
ENGINE CONTROLS
FUEL SELECTOR VALVE
FUEL BOOST PUMP
COMPASS
ENGINE CONTROLS
HOISTING SLING
UPPER CONNECTION
HOISTING SLING INSTALL

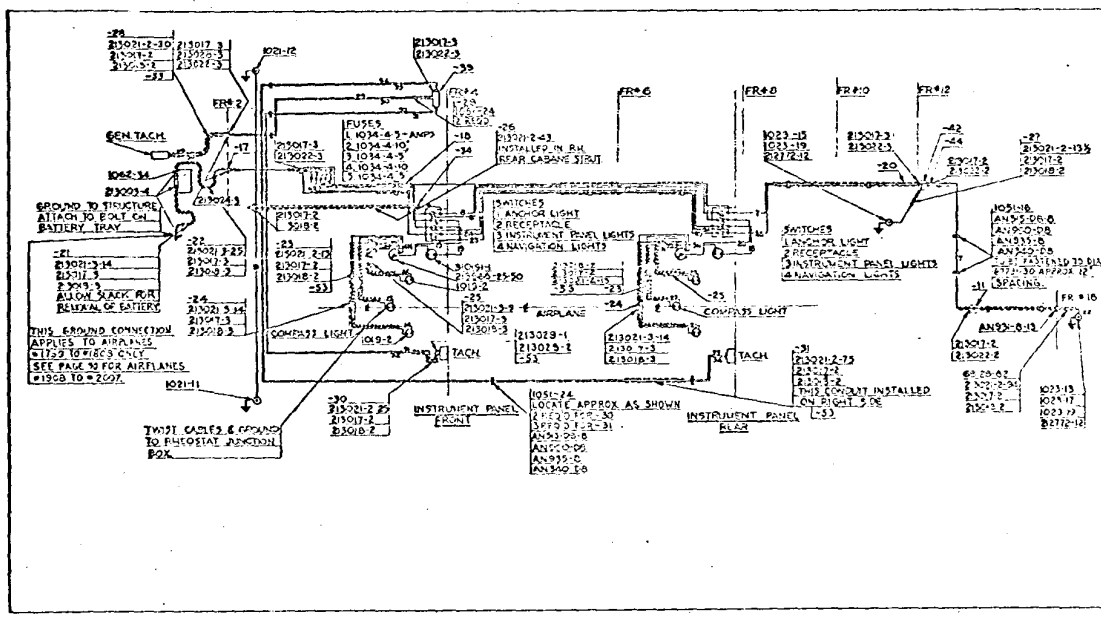

SURFACE CONTROLS INSTALLATION
REF. DWG. 67646
REVISED 12-16-40
NEUTRAL RUDDER
RUDDER MOVEMENT
68147-16
68147-2
68147-8
68148-2
68148-4
ELEVATOR HORN
AN4-12
AN310-4
AN960-416
AN380-2C-2
ELEVATOR MOVEMENT
NEUTRAL ELEVATOR
UP
DOWN
FR.18
FR.16
FR.14
FR.12
FR.10
FR.8
FR.6
FR.4
FR.2
AN4-7
AN310-4
AN380-2C-2
RUDDER HORN
NOT SHOWN IN PLAN VIEW
AILERON MOVEMENT-STICK MOVEMENT IS 18° EACH SIDE OF ℄ OF AIRPLANE
NEUTRAL AILERON POSITION
67524-1 ELEVATOR TAB INSTALLATION
NEUTRAL
ELEVATOR STICK MOVEMENT
VERTICAL
THRUST
67523-1LH-2RH AILERON CONTROLS INSTALLATION
67647-1 TORQUE TUBE & STICK.
67708-BRAKE OPERATING MECHANISM (PEDALS)
PEDAL
AIRPLANE
1065-05
1029-A6-6
AN960-A6L (2 REQ'D)
AN520-6-6
AN345-6
68147-20
68147-30
68148-1
68148-3
47259-1
67255-1 AILERON STOP
68147-1 RUDDER CONTROL INSTALLATION
RUDDER PEDALS MOVEMENT
AN4-11
AN310-4
AN380-2C-2
AN510-6-4
AN935-6
AN345-6
213083-2 FOR BOOTS.


67666-6
67666-12
AN4-12
AN310-4
AN960-416
AN380-2C-2
LOWER WING PANEL
67666-18
67666-6
AILERON HORN
REAR BEAM
AIRPLANE
WING HINGE
10°
10°
-14
-9
-16
3 1/8
50 1/4 (FOR BRACKET)
50 1/4
10 1/4
AN4-16
AN310-4
AN960-416
AN380-2C-2
USED ON AIRPLANES 1923-2007 INC. -25
USED ON AIRPLANES 1759-1808 & 1508-1922 INC. -16 L.H. -25 R.H.
INSTALL WITH LONG JAW OUTBOARD.
NOTE- DASH NUMBERS ARE PART NOS. OF REFERENCE DRAWING
AN4-11
AN310-4
AN380-2C-2
INSTALL 67666-12 WITH CUTOUT INBOARD
AN4-12
AN310-4
AN960-416
AN380-2C-2
INSTALL 67666-12 WITH CUT OUTBOARD.
67666-10
AN4-32
AN4-12
AN310-4
AN960-416
AN380-2C-2
INSTALL THESE BOLTS WITH HEADS DOWNWARD.
WHEN -25 IS USED, ADJUSTABLE END SHOULD BE INBOARD.
-1 INSTALLATION (L.H. WING AS SHOWN.)
-2 INSTALLATION (R.H. WING OPPOSITE.)
REVISED 12-16-40
CONTROLS-AILERON
REF. DWG. 67523



ELEVATOR TAB CONTROLS
REF. DWG. 67524
REVISED 11-26-40

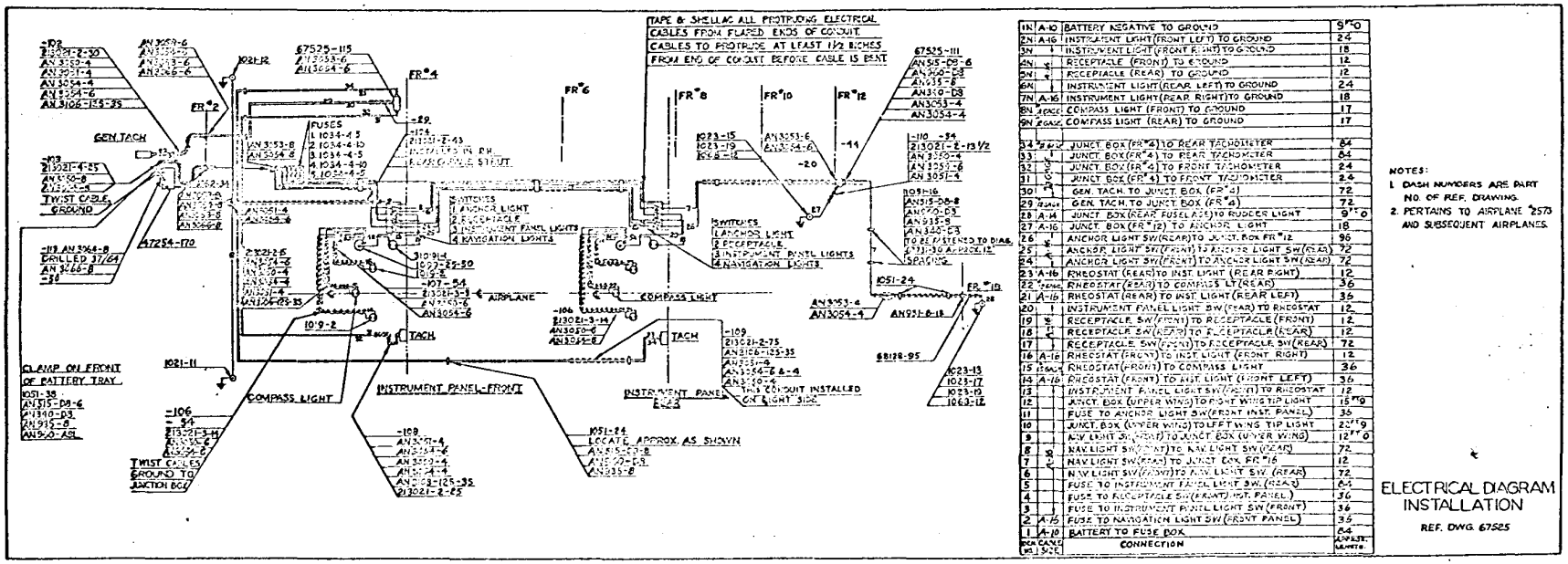

-18
-18
SECTION-AA
AN23-24
AN380-2C-2
AN320-3
REF. 67639-19
67639-20R F
FRAME #C
-40
-39
-25
-23
-14
-3 FRONT SEAT ASSEMBLY
-15
AN3-11
AN310-3
AN960-C10
AN380-2C-2
A
A
-43
-13
1048-8
AN4-11
AN310-4
AN380-2C-2
AN430-DD-7
UPSET HEADS
OUTSIDE
-41
-14
AN380-2C-2
310355-14
310355-
AN380-2C-3
-12
AN24-24
AN380-2C-3
AN320-4
AN24-24
AN380-2C-3
AN320-4
310355-2
-11
-34
-35
FR #6
-34
-35
-34 FRONT
-21 REAR
-35
-1 INSTALLATION
FRONT SEAT
NOTE: -17 USED IN PLACE
OF -43 ON AIRPLANES
1759-1808 & 1908-1942 INC.
-19
-20
FRAME #10
-4 REAR SEAT ASSEMBLY
NOTE
DASH NUMBERS ARE PART
NO. OF REF DRAWING
-21
-34
-35
FRAME #10
-2 INSTALLATION
REAR SEAT
REVISED
12-16-40
PILOTS SEAT
INSTALLATION
REF. DWG. 67639



1N	A-10	BATTERY NEGATIVE TO GROUND	8	0"
2N	A-16	INSTRUMENT LIGHT (FRONT LEFT) TO GROUND	2	0"
3N	1	INSTRUMENT LIGHT (FRONT RIGHT) TO GROUND	1'	6"
4N	5	RECEPTACLE (FRONT) TO GROUND	1'	0"
5N	4	RECEPTACLE (REAR) TO GROUND	1'	0"
6N	1	INSTRUMENT LIGHT (REAR LEFT) TO GROUND	2	0"
7N	A-15	INSTRUMENT LIGHT (REAR RIGHT) TO GROUND	1'	6"
8N		COMPASS LIGHT (FRONT) TO GROUND		
9N		COMPASS LIGHT (REAR) TO GROUND		
34	A-16	JUNCT BOX (FR#4) TO REAR TACHOMETER	3'	0"
33	1	JUNCT BOX (FR#4) TO REAR TACHOMETER	1'	0"
32	5	JUNCT BOX (FR#4) TO FRONT TACHOMETER	2	0"
31	4	JUNCT BOX (FR#4) TO FRONT TACHOMETER	2'	0"
30	1	GEN. TACH. TO JUNCT BOX (FR#4)	6'	0"
29	A-16	GEN. TACH. TO JUNCT BOX (FR#4)	6'	0"
28	A-14	JUNCT BOX (REAR FUSELAGE) TO RUDDER LIGHT	9'	0"
27	A-16	JUNCT BOX (FR#12) TO ANCHOR LIGHT	1'	6"
26		ANCHOR LIGHT SW (REAR) TO JUNCT BOX FR#12	6'	0"
25		ANCHOR LIGHT SW (FRONT) TO ANCHOR LIGHT SW (REAR)	6'	0"
24		ANCHOR LIGHT SW (FRONT) TO ANCHOR LIGHT SW (REAR)	6'	0"
23		RHEOSTAT (REAR) TO INST LIGHT (REAR RIGHT)	1'	0"
22		RHEOSTAT (REAR) TO COMPASS LT (REAR)	3'	0"
21		RHEOSTAT (REAR) TO INST LIGHT (REAR LEFT)	3'	0"
20		INSTRUMENT PANEL LIGHT SW (REAR) TO RHEOSTAT	1'	0"
19		RECEPTACLE SW (FRONT) TO RECEPTACLE (FRONT)	1'	0"
18		RECEPTACLE SW (REAR) TO RECEPTACLE (REAR)	1'	0"
17		RECEPTACLE SW (FRONT) TO RECEPTACLE SW (REAR)	6'	0"
16		RHEOSTAT (FRONT) TO INST LIGHT (FRONT RIGHT)	1'	0"
15		RHEOSTAT (FRONT) TO COMPASS LIGHT	3'	0"
14		RHEOSTAT (FRONT) TO INST LIGHT (FRONT LEFT)	3'	0"
13	2	INSTRUMENT PANEL LIGHT SW (FRONT) TO RHEOSTAT	1'	0"
12	2	JUNCT BOX (FR#10) TO FRONT WING TIP LIGHT	15'	0"
11		FUSE TO [illegible] SW (FRONT INST PANEL)	3'	0"
10		JUNCT BOX [illegible] TO LEFT WING TIP LIGHT	22'	0"
9		[illegible] SW (RIGHT) TO [illegible]	12'	0"
8		NAV LIGHT SW (LEFT) TO NAV LIGHT SW (REAR)	6'	0"
7		NAV LIGHT SW (LEFT) TO JUNCT BOX FR#16	12'	0"
6		NAV LIGHT SW (RIGHT) TO NAV LIGHT SW (REAR)	6'	0"
5		FUSE TO INSTRUMENT PANEL LIGHT SW (REAR)	7'	0"
4		FUSE TO RECEPTACLE SW (FRONT INST PANEL)	3'	0"
3		FUSE TO [illegible]	3'	0"
2	A-16	FUSE TO [illegible]	3'	0"
1	A-10	BATTERY TO FUSE BOX	7'	0"
NO.	SIZE	CONNECTION	WIRE LENGTH	

NOTE
DASH NUMBERS ARE PART NO OF REF. DRAWING.

ELECTRICAL DIAGRAM INSTALLATION
REF. DWG 67523A
REVISED [illegible]



1N	A-10	BATTERY NEGATIVE TO GROUND	9'-0
2N	A-16	INSTRUMENT LIGHT (FRONT LEFT) TO GROUND	24
3N	1	INSTRUMENT LIGHT (FRONT RIGHT) TO GROUND	18
4N	4	RECEPTACLE (FRONT) TO GROUND	12
5N	4	RECEPTACLE (REAR) TO GROUND	12
6N	1	INSTRUMENT LIGHT (REAR LEFT) TO GROUND	24
7N	A-16	INSTRUMENT LIGHT (REAR RIGHT) TO GROUND	18
8N	4 PLACES	COMPASS LIGHT (FRONT) TO GROUND	17
9N	4 PLACES	COMPASS LIGHT (REAR) TO GROUND	17
34	2 PLACES	JUNCT. BOX (FR°4) TO REAR TACHOMETER	84
33	1	JUNCT. BOX (FR°4) TO REAR TACHOMETER	84
32	3	JUNCT. BOX (FR°4) TO FRONT T/SHOMETER	24
31	3	JUNCT. BOX (FR°4) TO FRONT T/OMETER	24
30	4	GEN. TACH. TO JUNCT. BOX (FR°4)	72
29	4 PLACES	GEN. TACH. TO JUNCT. BOX (FR°4)	72
28	A-14	JUNCT. BOX (REAR FUSELAGE) TO RUDDER LIGHT	9'-0
27	A-16	JUNCT. BOX (FR°12) TO ANCHOR LIGHT	18
26	1	ANCHOR LIGHT SW (REAR) TO JUNCT. BOX FR°12	96
25	4	ANCHOR LIGHT SW (FRONT) TO ANCHOR LIGHT SW (REAR)	72
24	1	ANCHOR LIGHT SW (FRONT) TO ANCHOR LIGHT SW (REAR)	72
23	A-16	RHEOSTAT (REAR) TO INST. LIGHT (REAR RIGHT)	12
22	4 PLACES	RHEOSTAT (REAR) TO COMPASS LT (REAR)	36
21	A-16	RHEOSTAT (REAR) TO INST. LIGHT (REAR LEFT)	36
20	1	INSTRUMENT PANEL LIGHT SW (REAR) TO RHEOSTAT	12
19	4	RECEPTACLE SW (FRONT) TO RECEPTACLE (FRONT)	12
18	4	RECEPTACLE SW (REAR) TO RECEPTACLE (REAR)	12
17	1	RECEPTACLE SW (FRONT) TO RECEPTACLE SW (REAR)	72
16	A-16	RHEOSTAT (FRONT) TO INST. LIGHT (FRONT RIGHT)	12
15	4 PLACES	RHEOSTAT (FRONT) TO COMPASS LIGHT	36
14	A-16	RHEOSTAT (FRONT) TO INST. LIGHT (FRONT LEFT)	36
13	1	INSTRUMENT PANEL LIGHT SW (FRONT) TO RHEOSTAT	12
12		JUNCT. BOX (UPPER WING) TO FRONT WING TIP LIGHT	15'-9
11		FUSE TO ANCHOR LIGHT SW (FRONT INST. PANEL)	36
10		JUNCT. BOX (UPPER WING) TO LEFT WING TIP LIGHT	20'-9
9		NAV. LIGHT SW (FRONT) TO JUNCT. BOX (UPPER WING)	12'-0
8	30	NAV. LIGHT SW (FRONT) TO NAV. LIGHT SW (REAR)	72
7	4	NAV. LIGHT SW (REAR) TO JUNCT. BOX FR°16	12
6		NAV. LIGHT SW (FRONT) TO NAV. LIGHT SW (REAR)	72
5		FUSE TO INSTRUMENT PANEL LIGHT SW (REAR)	64
4		FUSE TO RECEPTACLE SW (FRONT INST. PANEL)	36
3		FUSE TO INSTRUMENT PANEL LIGHT SW (FRONT)	36
2	A-16	FUSE TO NAVIGATION LIGHT SW (FRONT PANEL)	36
1	A-10	BATTERY TO FUSE BOX	84
WIRE CABLE NO.	SIZE	CONNECTION	APPROX. LENGTH

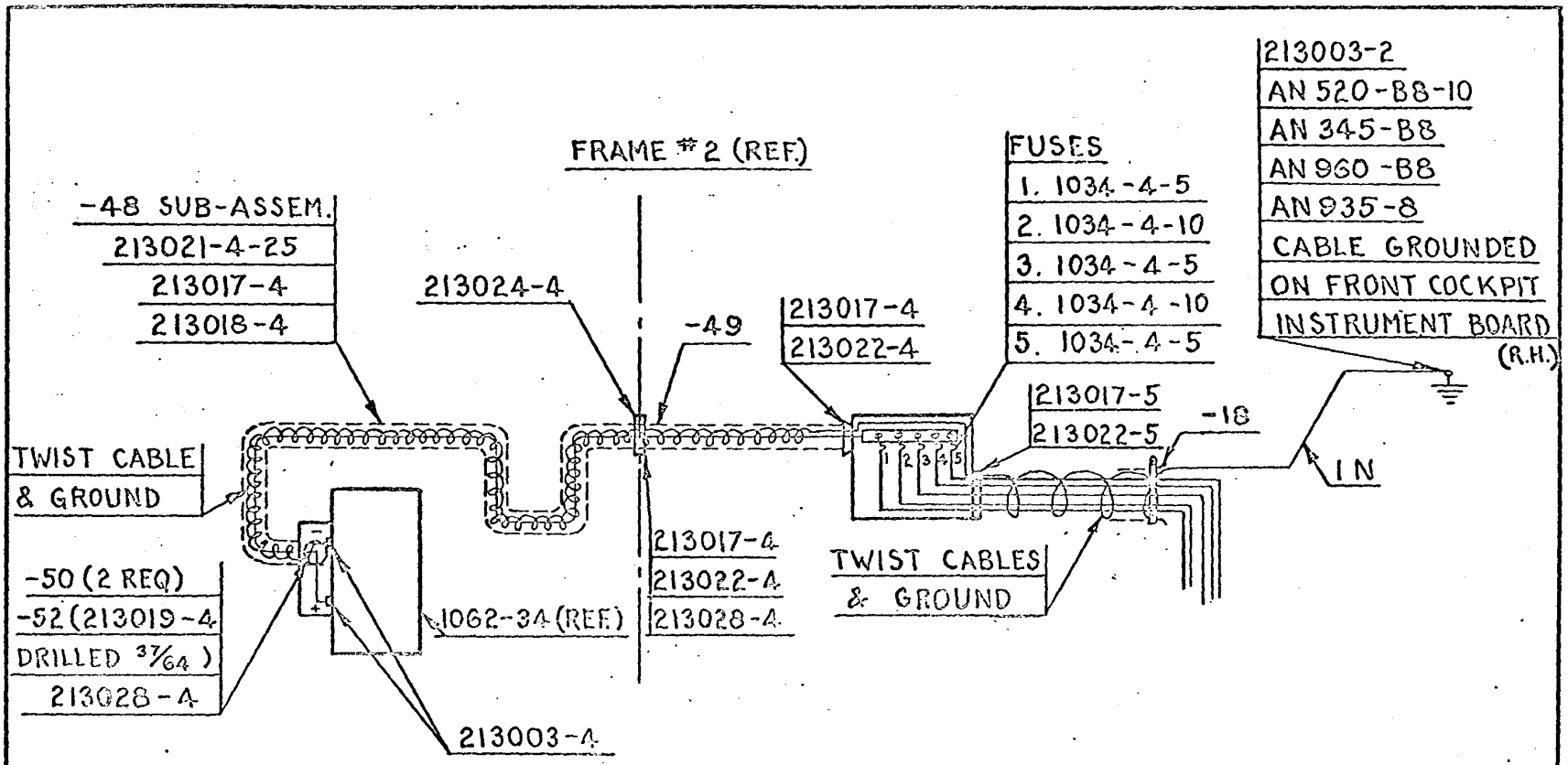
NOTES:
1. DASH NUMBERS ARE PART NO. OF REF. DRAWING.
2. PERTAINS TO AIRPLANE 2573 AND SUBSEQUENT AIRPLANES.

ELECTRICAL DIAGRAM INSTALLATION

REF. DWG. 67525

REPORT NO. M-4094

PAGE 89A



NOTE
GROUND CONNECTION
FOR AIRPLANES 1759-1808
SEE PAGE 89.

GROUND CONNECTION FOR AIRPLANES 1908-2007

ADDITION 12-16-40

(2) Running lights and one anchor light are provided. The anchor light is on the top of the fuselage, just aft of the rear cockpit.

(3) No identification lights or landing lights are provided.

(4) Each instrument board is lighted indirectly.

(5) Switches for navigation lights, anchor lights, instrument board lights, and light sockets are provided on each instrument board. The switches are mounted on a removable panel, accessible from the front side of each instrument board.

(6) A distribution panel is not provided.

(7) A fuse box is installed on Frame #4, R.H. side in the front cockpit and is accessible to the pilot. Spare fuses are also installed in this box. The fuses used are 5 amps. and 10 amps. See Notes in fuse box.

(8) The ignition switch is installed in engine compartment and is remotely controlled from the front and rear cockpits, left hand side.

(9) Provision for installing a Navy battery S-34 is made on the right hand side in the engine compartment, forward of the firewall and is easily accessible for inspection or removal through access door in side of engine cowl.

(10) No battery charging system nor generator is installed in this airplane.

(E) Hoisting

(1) Refer to Drawing 67612, page 80 for the arrangement of the hoisting sling.

(2) The hoisting sling is of the pendant cable type and is stowed in the upper wing.

(3) To use the hoisting sling it is only necessary to open the top door in upper wing, pull out hoisting sling and it is ready for use. A quick detachable fastener is provided on the door.

(4) When hoisting sling is not used, as on land type airplanes, it can be entirely removed.

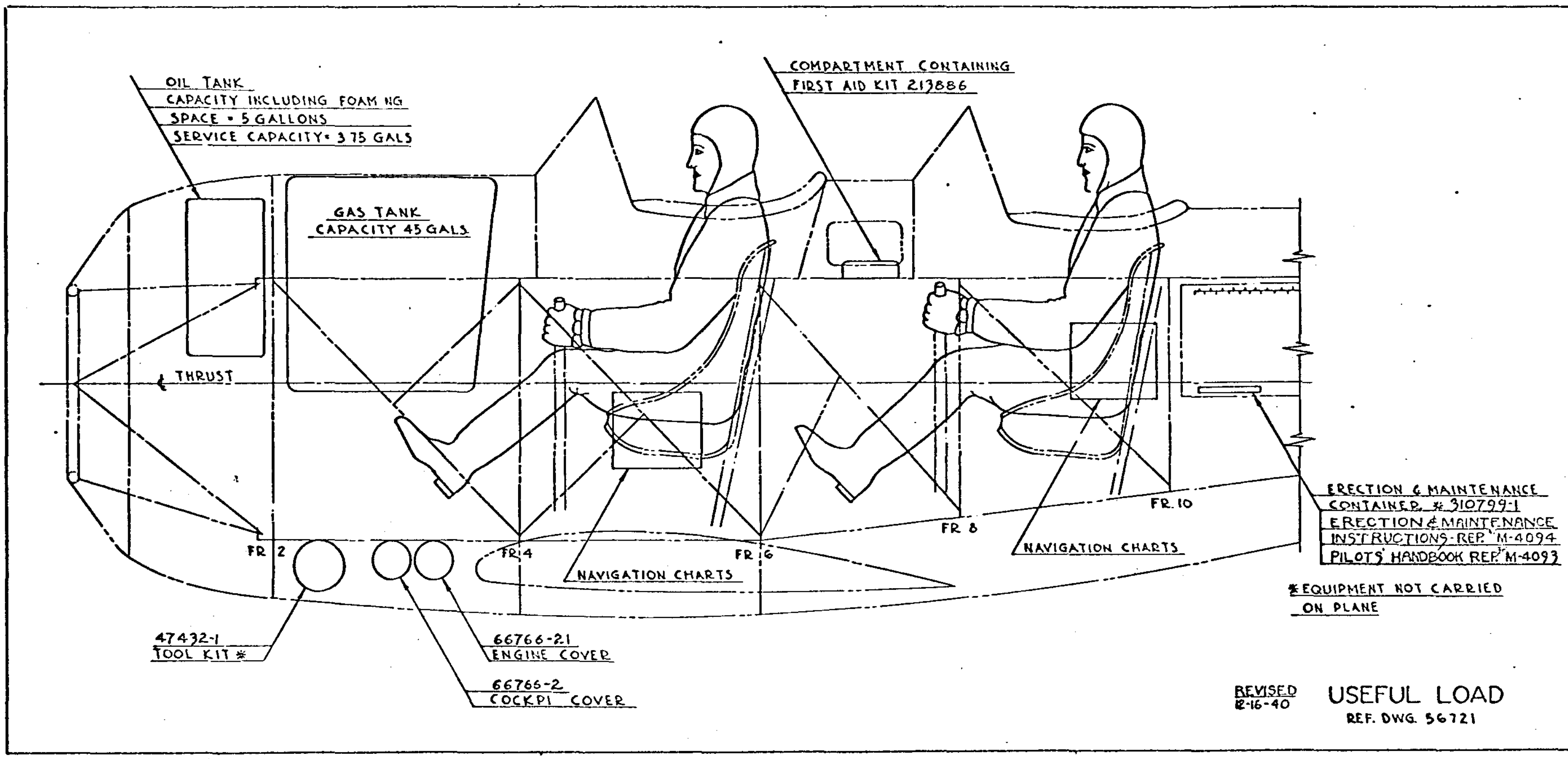
SECTION V - USEFUL LOAD

1. Refer to Drawing 56721, page 93 for the Useful Load Installation.

2. The normal useful load as a training landplane or seaplane shall be 702 pounds, sub-divided as follows:

TRAINING LANDPLANE		702	702
CREW (2) (incl. parachutes & life jackets)	400		400
GASOLINE - 45 gallons	270		270
OIL (3.75 gallons)	28		28
ARMAMENT	0		0
EQUIPMENT	4		4
Communicating	0	0	
Navigating - Charts	1	1	
Miscellaneous - First-Aid Kit	3	3	

TRAINING SEAPLANE		702	702
CREW (2) (incl. parachutes & life jackets)	400		400
GASOLINE - 45 gallons	270		270
OIL (3.75 gallons)	28		28
ARMAMENT	0		0
EQUIPMENT	4		4
Communicating	0	0	
Navigating - Charts	1	1	
Miscellaneous - First-Aid Kit	3	3	


OIL TANK
CAPACITY INCLUDING FOAMING
SPACE = 5 GALLONS
SERVICE CAPACITY = 3.75 GALS
GAS TANK
CAPACITY 45 GALS
COMPARTMENT CONTAINING
FIRST AID KIT 213886
℄ THRUST
FR 2
FR 4
FR 6
FR 8
FR 10
NAVIGATION CHARTS
NAVIGATION CHARTS
47432-1
TOOL KIT *
66766-21
ENGINE COVER
66766-2
COCKPIT COVER
ERECTION & MAINTENANCE
CONTAINER # 310799-1
ERECTION & MAINTENANCE
INSTRUCTIONS REP. M-4094
PILOTS HANDBOOK REP. M-4093
* EQUIPMENT NOT CARRIED
ON PLANE
REVISED
12-16-40
USEFUL LOAD
REF. DWG. 56721

SECTION VI

LUBRICATION CHART

UNIT	ITEM	POINTS	LUBRICANT	HOURS INTERVAL
LANDING GEAR	Ball & Socket Joints	2	* Spec. M-304 Gr.A	
	Wheel Bearings	4	Packed with grease ***	20
	Torque Arms	8	* Spec. M-304 Gr.A	
	Shock Struts	2	Fill - Spec. M-339	**
TAIL WHEEL	Lock	1	Spec. M-304 Gr.A	60
	Shock Strut	1	Fill - Spec. M-339	**
	Terminals-Shock Strut	2	* Spec. M-304 Gr.A	20
	Caster	2	* Spec. M-304 Gr.A	20
	Drag Truss	2	* Spec. M-304 Gr.A	20
BRAKE CONTROL	Jack Shaft Supports	8	Light Oil	60
	Con. Rod Terminals	40	Light Oil	
PILOT'S SEATS	Tube Slides	8	Light Oil	
	Lock Bolt at Spring	8	Spec. M-304 Gr.A	60
	Lock.Mech.Bearings	8	Light Oil	
RUDDER CONTROL	Rudder Pedals	8	* Spec. M-304 Gr.A	20
	Terminals - Cable	6	Light Oil	60
ELEVATOR TAB CONTROL	Indicator Crankshaft Frt.& Rear Cockpits	2	Light Oil	60
	Tab Hinges	2	Light Oil	
	Sheave Shaft	1	Light Oil	
ENGINE CONTROLS	Jack Shaft Bearings	7	* Spec. M-304 Gr.A	60
	Terminal(Clevis Type)	2	Light Oil	
SPARK CONTROL	Jack Shaft Bearings	2	* Spec. M-304 Gr.A	
	Terminals	2	Light Oil	60
	Bearings	3	Light Oil	
STARTER BRACKET	Ext. Shaft Bearing	1	* Spec. M-304 Gr.A	60
FUEL PUMP CONTROL	Terminals	5	Light Oil	60
	Bearings	2	Light Oil	
FUEL COCK SHUT-OFF	Bearings	4	Light Oil	60
	Universal	3	Light Oil	
MAGNETO SWITCH ROD	Bearings	3	Light Oil	60
	Universal	3	Light Oil	

NOTE: All anti-friction bearings are packed with grease and require no further lubrication.

* Pressure type lubricator at these points.

** Daily - after flight

*** Marfak #3, Texaco

SECTION VII - MATERIALS OF CONSTRUCTION

(A) TABLE OF TIE RODS

PART NUMBER	TYPE	WHERE USED	LENGTH PIN TO PIN	TENSION IN LBS.	LIMITS	NO. REQ.
214282	Streamline	Landing Gear (Wheel Type)	35-3/4			2
AN675AC-3550	Streamline	Landing Gear (Float Type)	37-5/8			2
AN675AC-4450	Streamline	Landing Gear (Float Type)	46-1/2			2
AN674AC-6175	Streamline	Landing Gear (Float Type)	63-5/8			2
AN674AC-7450	Streamline	Landing Gear (Float Type)	76-3/8			2
AN703AC-3275	Round	Lower Wing	34-1/4	500	A	4
AN703AC-3900	Round	Lower Wing	40-7/16	700	A	2
AN704AC-3850	Round	Lower Wing	40-3/8	700	A	2
AN704AC-4125	Round	Lower Wing	42-7/8	700	A	2
AN703AC-4175	Round	Lower Wing	43	700	A	2
AN703AC-5100	Round	Lower Wing	52-1/4	700	A	4
AN703AC-3275	Round	Upper Wing	34-5/16	500	A	4
AN704AC-4275	Round	Upper Wing	44-5/8	700	A	4
AN704AC-5050	Round	Upper Wing	52-5/16	700	A	2
AN703AC-5100	Round	Upper Wing	52-3/8	700	A	6
AN677AC-3950	Streamline	Wing Erection	42-5/8	3100	B	2
AN676AC-4150	Streamline	Wing Erection	44-3/16	1750	C	2
AN675AC-4375	Streamline	Wing Erection	46	1250	C	2
AN675AC-11400	Streamline	Wing Erection	116-1/8	1000	C	4
AN674AC-13925	Streamline	Wing Erection	141-3/8	325	D	4
AN676AC-13950	Streamline	Wing Erection	141-7/16	900	C	4

LIMITS: A = ±100
B = ±300
C = + 300 - 150
D = + 150 - 50

(B) PHYSICAL PROPERTIES OF METALS

MATERIAL	NAVY DESIGNATION	FORM	NAVY MATERIAL SPEC.	NAVY HT.T. SPEC.	ULTIMATE TENSILE STRENGTH	YIELD POINT	ULTIMATE SHEAR STRENGTH	BEARING STRENGTH	MODULUS OF ELASTICITY	MODULUS OF RIGIDITY
Alum. Alloy	AL-17-T	.013 to 1.5 thick sheet	47A3	SR-53	55,000	32,000	35,000	75,000	10,000,000	3,800,000
Alum. Alloy	AL-52-1/2 H	Sheet	47A11		34,000					
Alum. Alloy	AL-3-1/2 H	Sheet	47A4		19,500					
Alum. Alloy	AL-52-A	Tubing	44T32							
Alum. Alloy	AL-24-T	.01 to 1.0 thick sheet	47A10	SR-53	62,000	40,000	37,000	90,000	10,500,000	3,800,000
Alum. Alloy		Casting	46A1 Class 4	SA-8	29,000	16,000	25,000	45,000	10,000,000	3,800,000
Alum. Alloy	AL-24-T	Tubing	44T28	SR-53	62,000	40,000	37,000	90,000	10,500,000	3,800,000
Alum. Alloy	AL-24-T	Bar	46A9	SR-53	62,000	40,000	35,000	90,000	10,500,000	3,800,000
Alum. Alloy	AL-17	Forging	46A7 Gr.1	SR-53	55,000	30,000	35,000	99,000	10,500,000	3,800,000
Alum.Covered Alum. Alloy	AL-24a -T	Sheet	47A8	SR-53	56,000	37,000				
Nickel Alloy		Rod	46N5		140,000	100,000				
Nickel Alloy		Strip	46N5		140,000					

MAT'L.	TEMPER	FORM		NAVY MATERIAL SPEC.		ULT. TENS. STRENGTH Note 1	YIELD POINT Note 1	ULTIMATE SHEAR STRENGTH	BEARING STRENGTH	MODULUS OF ELASTICITY	MODULUS OF RIGIDITY
CHROME-MOLYBDENUM STEEL (See Note 2)	NORMALIZED	.188&UNDER	Sheet	47S14	NAVY AERO. SPECIFICATION PH-5-10	95,000	75,000	55,000	140,000	29,000,000	11,000,000
			Bar	46S23 Gr.A or B							
			Tubing	44T18							
		OVER.188	Sheet	47S14		90,000	70,000				
			Bar	46S23 Gr.A or B							
			Tubing	44T18							
	Heat Treated 125,000		Sheet	47S14		125,000	100,000	75,000	175,000	29,000,000	11,000,000
			Bar	46S23 Gr.A or B							
			Tubing	44T18							
	Heat Treated 150,000		Sheet	47S14		150,000	135,000	90,000	190,000	29,000,000	11,000,000
			Bar	46S23 Gr.A or B							
			Tubing	44T18							
STEEL			Bar	46S21		125,000	100,000				
STEEL			Bar	46S40							
STEEL			Sheet	47S19		80,000	35,000				
STEEL			Sheet	AN-QQ-S 666							
STEEL			Casting	46S27 Gr.7		70,000	40% of U.T.S				

NOTE 1 Unit stresses in joints heat-treated after welding shall not exceed 80% of the standard properties of the material corresponding to the heat-treatment.

NOTE 2 These properties apply to all alloy steels capable of being heat-treated to the indicated temper.

Report No. M-4098

SECTION VIII

MODEL N3N-3 AIRPLANE

SPECIFICATION

FOR

THE PROTECTION OF NAVAL AIRCRAFT AND PARTS

FINAL CORRECTED

Submitted under Item A(2), Part III, Specification SR-6E

APPROVED WM. NELSON
Chief Engineer

Project Order 58-40
Project Order 117-40

No.of Sheets 28

Date 3/6/40

Title Page Revised 12/16/40